

# AMATEUR RADIO



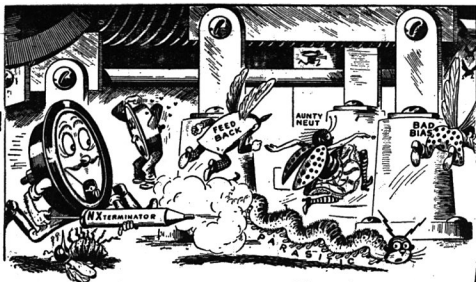
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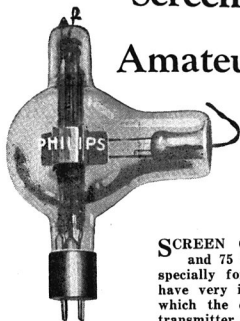
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Types:  
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Table A shows the various electrical properties of the Philips amateur transmitting valves:—

## CHARACTERISTICS:

Table A. Type.	Screen Grid Valves	
	QC 05/15.	QB 2/75
Filament Voltage .....	4.0	10.0
Filament current* .....	1	3.25
Saturation current* .....	400	2,000
Anode voltage .....	400-500	2,000
Screen grid voltage .....	75-125	300-500
Max. anode dissipation .....	15	75
Anode dissipation on test .....	20	100
Max. screen grid dissipation .....	3	15
Amplification factor* .....	225	200
Mutual conductance (slope)* .....	1.4	1.4
Int. resistance* .....	160,000	150,000
Anode-grid capacity .....	.001	.02
Max. diam. of bulb .....	50	100
Max length .....	160	210
*Approximate values.		

# PHILIPS

## TRANSMITTING VALVES



# AMATEUR RADIO

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## Amateur Radio

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## EDITORIAL . .

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### *The Plain Duty of the Member to the Advertiser*

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When, about twelve months ago, steps were taken to add to the importance and prestige of "Amateur Radio," a very definite pledge was given by members of the Institute that whatever firms supported the magazine through its advertising columns, they were the firms for their money. Since then, at monthly meetings and social functions, this pledge has been reiterated with enthusiasm, and has been perpetuated in the news columns of the magazine. We do not hesitate to assert that the pledge has not, with a few loyal exceptions, been honoured. Certain advertisers have complained that they have not received the support from hams that they were led to expect. This complaint is intensified and made more real in cases where, through the advertisements, definite invitations were given to write for free literature of different kinds, which constituted a real test for the efficacy or otherwise of the publicity. These invitations, necessitating for acceptance the expenditure of a few minutes of time, envelope and notepaper, and a twopenny stamp, have not been accepted as they should have been, and naturally the advertisers are dissatisfied.

There can be no question of the definite appeal which "Amateur Radio" offers. There can also be no question that, in the ordinary way, the advertisements are, shall we say, automatically responded to. But in the case of a publication such as this, the connection between the subscriber and the advertiser is more clearly defined than that of even a daily newspaper. That is to say, there are no class, political or other side issues to cloud the plain concrete fact that here is a magazine which belongs to a band of enthusiasts, who are pardonably proud of it. They spend quite a lot of money in divers directions in the pursuit of their investigations. They commit certain business concerns, who are out to serve them with the goods they require, to support the publication with their advertisements; they hope and expect that their magazine shall thrive and progress in a manner commensurate with the importance of their calling, yet——! Get to it, Hams!

---

*A Message from the Advertiser—*

**"HELP US TO HELP YOU!"**

## "Rectox" Instruments as Output Indicators

(By Westinghouse Electric and Manufacturing Co., through courtesy of  
A. S. Duke Pty. Ltd., Bourke St., Melbourne).

There are numerous means of measuring percentage modulation of a received signal. The most accurate require the use of a cathode-ray oscillograph, while others employ simple rectifying devices. The latter method may be applied to the average amateur super-heterodyne receiver since it incorporates one rectifier, namely, the detector, and a second may be applied in the form of a Rectox instrument. The results obtained will have sufficient accuracy for amateur purposes. When calibrated the Rectox output indicator can be used for checking and adjusting operation of the modulated stage or following stages of transmitters, and numerous other adjustments requiring accurate readings of percentage modulation.

In a later article the installation, calibration and use of a second detector plate current indicator will be described, and since this device is necessary with the output meter, the receiver will have to be so equipped. The function of the detector plate current indicator in this case is to indicate the level of the incoming or received signal so it can be held constant while readings on modulation are being taken.

The output of the detector and the following amplifiers consists of pulsations at audio frequencies, their amplitude being dependent upon the percentage they have modulated the received signal. In other words, an audio frequency applied to a carrier so as to modulate it 100 per cent. will have the greatest amplitude and give the highest output from a detector. This is true for amplitude, or the so-called Heising modulation. Since per cent. modulation is a linear function, the output of the detector will increase in direct proportion and the output indicator may be read directly in percentage modulation, provided the input to the detector is held at a constant level. In simple terms, all that this means is that if a 10-volt Rectox instrument is used across the output of your receiver, and the level is set so it reads full scale on a 100

per cent. modulated carrier, 9 volts indicates 90 per cent., 5 volts 50 per cent., etc., provided the input to the detector is held constant at all times.

This holds for the average receiver if the signal level is kept low so as to not overload the preceding stages. Should the receiver employ variable-mu tubes, or a duo-diode detector, the calibration becomes more difficult due to distortion, automatic volume control effects, or general change in operating point of the detector, and for these reasons the accuracy may be considerably lower.

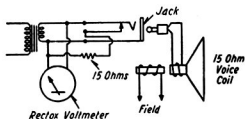
The choice of an output indicator depends upon the conditions set by the amateur. Should he desire a higher degree of accuracy, it is advisable to replace the loud speaker with an equivalent resistance load and connect the output indicator across this load. Should he not be desirous of the higher degree of accuracy, he may connect the instrument directly across the loud speaker voice coil and discount the inaccuracies induced by the change of speaker impedance with change in frequency. Should the speaker be a dynamic with a 10 to 20-ohm voice coil, a 0.5 or 0.10-volt Rectox voltmeter will be satisfactory. When a pair of phones or a magnetic speaker of several thousand ohms is used, a 0.10 to 0.50-volt Rectox voltmeter will serve. These meters should be of the 1000-ohms per volt type or preferably higher for magnetic speakers. It is possible to simply connect a Rectox milliammeter of 0.5 or 0.10-mil range in series with a magnetic speaker or phones and use the impedance of them as the voltmeter resistor. In this case considerable error will be induced due to change in speaker impedance with change of frequency.

The easiest method of calibration would be to check the receiver on a carrier having known percentages of modulation, but since this is seldom available it will be necessary to resort to the method of determining the 100 per cent. reading and calibrating the output indicator from its

## Amateur Radio

voltage or current scale. This is satisfactory since the proportion is direct. Stations using a-c. on the final amplifier stages emit a carrier that closely approximates 100 per cent. modulation. In this class are quite a few Army and Navy stations, but one must wait until they transmit a steady carrier or long dash, so that the instruments have time to settle down. The best class of stations for calibration purposes are the trans-Atlantic phone stations, where 100 per cent. modulation is employed in setting levels and making adjustments. At such times they use 1000 or 1500-cycle tone applied for reasonable periods of time.

Following is the procedure:—Tune in a station having a known 100 per cent. modulation carrier. Set the detector level or volume at such a point that the output indicator reads full scale. Note the reading on the second-detector plate-current indicator, and always adjust the plate current to this value on future readings, when signals are compared. Calibrate the scale of the Rectox output indicator

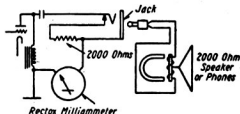


so that per cent. modulation is directly proportional to output volts, or current through the voice coil. Remember to always adjust the level of the incoming or received signal to the proper level as indicated by the second-detector plate-current indicator and then all readings of per cent. modulation will be correct.

Some stations employing grid modulation often bias their modulated amplifier almost to cut off, and when modulation is employed their carrier will increase up to a hundred times. This is confusing on voice or music, but when steady tone is used for modulation the carrier settles down and a reading may be taken. Such a reading gives equivalent percentage modulation, but it would not be possible to compare this with an ordinary carrier since it is subject to such large changes in field strength.

In all the foregoing it has been assumed that the detector has linear

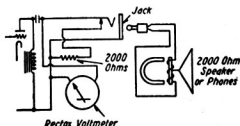
characteristics, but authorities disagree as to the existence of a truly linear detector. Departure of the detector from linear characteristics introduces some inaccuracies. Measurements of percentage modulation by this method are not precise, but they are sufficiently accurate to be extremely useful to the amateur. The frequency characteristics of the audio system have been ignored since it is assumed that the amateur will employ



a single frequency, say 1000 cycles, in his calibration, and if the same frequency is used in modulation adjustments and checks on other transmitters, this variation may be ignored.

Should the amateur desire to make an overall frequency check of his receiver, he may do so by choosing a suitable level of received signal and then applying different audio frequencies to a transmitter, always adjusting the level at the transmitter so as to cause the same increase in antenna current. The reason for using this procedure is that it eliminates all errors in the frequency characteristics of the transmitter and its associated speech equipment.

Should he desire to make frequency checks on other transmitters, he may use this calibration of his own receiver, or else replace its present audio system with a two or three-



stage resistance coupled amplifier. If a resistance coupled amplifier is used, he should carefully determine the point at which it overloads, and then adjust the signal level so that he is well below this point. Connections for a Rectox instrument in both low and high impedance circuits are shown in Figs. 1, 2 and 3.

## A Single Stage Three Band Xtal Exciter Unit

Using the New R.F. Pentode RCA 802.  
(By VK5ZX.)

The inherent disadvantage of having a crystal controlled transmitter and multi-band operation in ham work is the necessity of several frequency doubling stages preceding the final amplifier, making quite an array of power supplies, tubes and associated tuned circuits, etc. With the development of the Tritet principle, the number of stages could be reduced to a certain extent, but tubes with suitable characteristics have not been available; consequently the real advantage of the circuit could not be realised.

Tritet oscillators using tubes like 59's, etc., have good fundamental and

doubler or grid modulated amplifier.

From a structural standpoint it is particularly adaptable as a Tritet oscillator because (1) the suppressor grid operating at earth potential almost completely isolates the plate from the screen-cathode circuit internally. (2) The lead from the plate element is brought out to a cap at the top of the tube, keeping the hot end of the plate inductance well away from the grid-cathode circuit. (3) There is an internal shield which can be grounded at the socket. (4) External shielding is unnecessary. In practice, with an 80 metre xtal, the 802 performs well down to the fourth harmonic, which will be on 20 ms.

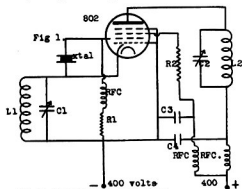


Fig. 1.  
L1-C1 Resonant at xtal freq.  
L2-C2 Resonant at desired harmonic  
R1 50,000 ohms, R2 25,000 ohms.  
C3, C4 0.002 mfd mica. S.G- 200v at 5mills

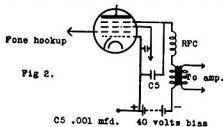


Fig. 2.

C5 .001 mfd. 40 volts bias

second harmonic output, but not enough on third or fourth harmonic to be useful as a driver for a power amplifier unless amplified by an intermediate stage. Also in working the plate circuit of the oscillator on the fundamental of the xtal with these tubes, considerable R.F. is developed in the grid circuit, due to the closeness of the grid and plate circuits at the base of the valve causing feedback and parasitic oscillations very near the xtal frequency, with consequent heating and risk of fracturing the xtal.

The RCA 802 is one of the new R.F. pentode series of tubes designed specially for suppressor grid modulation, although it can be used as class B amplifier-oscillator-frequency

(quadrupling). This is as far as it is practicable to go, as the next useful harmonic will be the eighth (10 metres). Actual R.F. output could not be measured due to lack of equipment, but on the fourth harmonic there is sufficient to drive a pair of 46's in push pull, operating with 500 volts on the plates, up to an input of a little over 50 watts. The power input to the oscillator was 12 watts.

The circuit (Fig. 1) is quite conventional. Plate high voltage supply is series fed, with a blocking condenser C4 .002 mfd. Screen voltage is through a 25,000 resistance R2, with an R.F. choke in series to the high voltage supply. The screen is by-passed with .002 mfd. C3. Bias is obtained through a 50,000 wirewound resistance R, also with an R.F. choke in series. A considerable number of tests were made with and without these chokes, and it was found that their presence decidedly improved the harmonic output. The sup-

## How to Get Complete Reception Data

A milliammeter in the plate circuit of the second detector of a superheterodyne, can be calibrated to give an accurate comparison of incoming signals.

Among the readings that can be made on received signals with this indicator are:

1. Signal strength.
2. Extent of fading.
3. Amount of signal strength increase with increase of power.
4. Change of signal strength with transmitter adjustments.
5. Lopsided or overmodulation.
6. A number of calibrated receiving sets in different stations can be used for antenna experiments on directional transmission. Located at cardinal points from the transmitter, the results of the observations will compare with the accuracy of a good field survey.

Also, it tells whether changes in the receiving antenna make a change in received signals and how much.

### What the Plate Current of the Second Detector Means.

What results, when a milliammeter is placed in the plate circuit of the second detector, and carefully calibrated, is in effect a vacuum tube voltmeter, which measures the field strength of the transmitter from which the signal is being received. Any changes in received signal voltage may be interpreted to mean changes in field strength and general stability of carrier.

The average second detector, or demodulator, is usually of the biased or self-biasing type and the tubes mostly used are the type "57", "227", or their six-volt companion type. By inserting a milliammeter directly in the plate lead, or in the cathode lead if the receiver has a coupled audio beat oscillator, these changes in plate current may be noted and the tube calibrated. The range of the meter used will depend upon the type of tube used and the plate voltages applied. An 0-1 or 0-1.5 mil milliammeter is suitable for the new receivers of the "single signal type" which usually use a 57 tube. An 0.5 mil milliammeter will usually be needed when the re-

ceiver is a combination job employing an old broadcast superheterodyne such as the Radiola 60 or 66. These sets use a "227" type detector and employ high plate voltages. The instrument inserted will read between ten and twenty per cent. of full scale when no signal is impressed on the detector grid, and do so throughout the stable operating range regardless of the setting of the volume control. When signals are received, the plate current will rise, depending upon the strength of the received signal and reach nearly full scale before any overloading occurs. The audio output at higher levels will be more than ample.

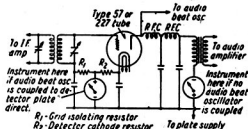


Fig. 1—Diagram showing possible locations of plate milliammeter for receiver using audio beat oscillator and without beat oscillator.

The ideal way to calibrate the detector would require a standard signal generator or a low range thermal voltmeter, but since these are seldom available to the amateur, he can fall back on the old method of changing the antenna current in an antenna and noting the results upon the receiver. Since power in an antenna varies as the square of the current, and the field strength varies directly as the antenna current, this furnishes an easy method.

The procedure is as follows:—

Have some near-by station whose signals are received with constant strength reduce his power to a very low value. He should have a low reading radio frequency milliammeter such as a 100 mil milliammeter and a one-ampere radio frequency ammeter. With these two instruments he can vary his field strength over a hundred to one ratio, this being more than needed to calibrate the receiver over the range permitted by the detector

(Continued on page 12)





lation in the P.A. stage is obtained. Excitation to the P.A. is now decreased slightly until "upward" modulation of aerial current is occurring. One of the many methods of decreasing the excitation to the buffer is by detuning the crystal oscillator, and this scheme is effective at VK5WJ. That is all the adjusting necessary, and reports received with the transmitter thus tuned indicate heavy and good quality modulation.

The speech amplifier gives all the gain necessary with the condenser mike, and miles too much when a single button type is employed. With the gain turned down two-thirds, over-modulation can easily occur. It is suggested that only one stage be used when single button mikes are to be handled.

DX results are quite fair. VU, OK, PK1, 2, and 3, ZL, VE, ZT, and other countries have been worked with this transmitter.

The speech amplifier consists of a 56 resistance coupled to a 56, which is transformer coupled to a pair of 45's in push-pull. The amplifier is housed in a metal box, the front panel of which carries volume controls, mike. switches, audio oscillator, gramophone and signal relaying controls. In conjunction with speech amplifier and transmitter, is incorporated a speech operating relay, which enables duplex working on same band, by putting transmitter on the air, and cutting receiver off when mike. is spoken into.

The five metre equipment consists of a 6A6 unity coupled oscillator modulated by a 6A6 in class "B" which is driven by another 6A6 with grids and plates in parallel. The receiver is a 56 super-regenerative detector and 2A5 audio. The aeriels used on both transmitter and receiver are eight foot vertical rods, hung from the ceiling of the shack. The feeders are four feet long and coupled to bottom of rods a la zepp. The results on this small power job have been very encouraging, having worked about sixteen stations on the five metre band in and around Sydney. The best results to date being good loud speaker signals duplex between VK2BP Hazelbrook, and Maroubra, a distance of approximately 53 miles. The 56 megacycle

band is certainly the one for local rag chews, as duplex working is so simple.

(Continued from page 10)

plate milliammeter. Power can be reduced by lowering the plate voltage, or by cutting out the final power amplifier and feeding the antenna directly from the first amplifier or the buffer. It is suggested that the antenna current at the start be ten mills, and that it be increased in steps to 20, 30, 40, etc., up to one hundred mills, at which point the instruments are changed and the process continued in tenth ampere steps up to one ampere or until the range of the detector instrument has been covered.

The observer at the receiver should set his volume control at the start of the run so there is only a visible change in the plate current of the detector, and during the run he should not change the setting. On some receivers changes as high as 50 to 1 have been calibrated, while others have covered ranges as low as 10 to 1.

Remember that this calibration is in terms of ratios and not actual voltages. You are now in position to check adjustments of antenna or transmitter by another amateur, compare merits of different receiving antennas and detect lopsided or over-modulation of a received signal. In the last case the detector plate indicator gives an indication which is much more useful than a simple measurement of percentage modulation, since over-modulation is a common ailment that is to be avoided at all costs.

Fig. 1 shows the locations of the plate milliammeter for a self-biased detector either with or without a coupled audio beat oscillator.

Westinghouse instruments recommended:—

For signal strength indicator—

On sets using type 227 tubes, 0.5 mil d-c. milliammeter; type MX, Style No. 818510; or type NX, Style No. 820213.

On sets using type 57 tubes, 0.15 mil d-c. milliammeter; type MX, Style No. 818505; type NX, Style No. 820208.

## New Batteries for Old

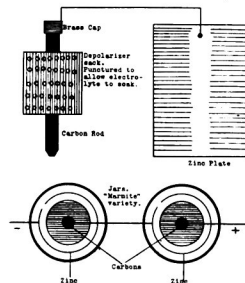
(By VK5LG.)

This is the story of VK5TX, otherwise James Foster, 11 York-street, Kensington, South Australia. His transmitter is a two-stage crystal controlled, using a Phillips A415 CO and type tube 49 as PA, plus a 40-metre crystal; a separate CO using B406 works on 80 MX. The receiver is a two-tube Schnell monitor, using type 30 tube, and, as a "sky wire," a matched impedance antenna. James is of necessity a QRP addict, for although living in a suburb only a few miles from the Adelaide G.P.O., there is no AC or power at his QRA. The power supply used is home-made B batteries, and as the making of these is very simple, and may be of help to some other unfortunate ham, the

spirits of salts. Plunge the zinc into the acid and then amalgamate zinc with mercury, treating each zinc square in the same way. This helps to protect and prolong the life of the zinc electrode. The method of amalgamating the zinc and mercury is as follows:—

Put a bead of mercury into a dish. Now, with a piece of clean linen wrapped round a stick rub the mercury all over the dipped zinc. It will be found that a little mercury goes a long way, and that the mercury readily unites with the zinc and forms a pasty amalgum. This will prevent the zinc electrode from wasting away while the cell is not in use. Place the carbon positive in one jar and the zinc negative in another after the manner of the old-time chemical rectifier. Disused marmite pots make ideal containers for these electrodes. Fill the pots with a solution of sal ammoniac and water, the proportions being half a teaspoonful of sal ammoniac to a jar of water (the 4oz. jar). The cell is now ready for immediate use. It may be necessary to puncture the sack round the carbon electrode to allow the electrolyte to penetrate. This forms a type of primary cell, each cell having a capacity of about  $1\frac{1}{2}$  volts, the life of the cell being the life of the zinc. If thick zinc is used the sal ammoniac requires changing approximately every three months, as the zinc tends to kill the electrolyte. Cells in use at 5TX are thin zinc and last about six months, the whole battery standing a drain of approximately 18 to 20 mills. easily.

5TX uses between 160 and 180 of these cells in series, giving him 200 volts pure D.C. for his transmitter. These cells, if properly constructed, can be used for almost any radio purpose requiring a light current drain. They are also used on his receiver, and I can vouch for the fact that they are extremely quiet in operation, even when nearly worn out. The fact that they give a steady tone or note to a crystal can be vouched for by all who have worked 5TX since his advent on the air.



story hinges around these batteries.

Firstly, beg, borrow or otherwise acquire a supply of discarded B batteries, or, better still, torch refills. Remove thoroughly all the old zinc and worn-out electrolyte. This will leave a carbon pencil and depolariser, or small sock filled with sawdust and black mixture. This must be perfectly clean. Solder copper wire to the cap on the end of the carbon pencil. Next cut out pieces of zinc about  $2\frac{1}{2}$  inches square, and bend this zinc into a tubular shape. Solder the other end of the copper wire to the zinc. Now get some hydrochloric acid, better known as

## Excerpts from the A.T.E. Journal

We are giving you a little of the dope not generally known on the type of equipment used in the record-breaking flight last November 20th into the upper regions. The transmitter was a simple push-pull Hartley, using 230 series tubes, with class "B" modulation, as this type of tube gave utmost efficiency and maximum power output with the least battery consumption. The receiver employed two stages of tuned RF, a regenerative detector and class "A" pentode output. All of the 230 series type again. The antenna was a half wave vertical, supported between the balloon and the gondola and fed by a parallel transmission line one-quarter wave length long. The receiving antenna was of the trailing wire type and was used to support a drift ring twenty metres below the gondola.

The power output of the transmitter was approximately three watts, and was operating on 15.760 kc. One point of interest was that at about 2000 feet there was a sharp dividing line at which distances up to several miles satisfactory communication could be maintained, and below that altitude communication was unsatisfactory, even over relatively short distances. On the second flight the power output was approximately one watt to the antenna, and signals were received at Point Reyes, California. Continuous communication was carried on between the balloon and Chicago, New York, and Akron, Ohio. Below 12,000 feet there was an absence of extraneous noises, a residual roaring of almost constant intensity was reported. This was probably carrier noise, because as the altitude increased the signal was increased, and at the highest point reached during the flight the received signal was of such intensity that it could be heard all over the gondola with the phones lying on the shelf.

An interesting fact was the special considerations given the mikes and the equipment to prevent them from gathering moisture and "breathing"; liquid oxygen was allowed to evaporate in the transmitter and the receiver in order to maintain a pressure greater inside than outside.—By W6DO, per W6BIM and URSLG.

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## Correspondence

The Editor, "Amateur Radio."

Sir,—The growing use of the ghastly doggerel that passes for tone from many of our stations calls for concerted action on the part of all right-minded "hams." The reactions of the man in the street when, as in the case of a visitor here lately, he hears such fearful expressions as "personality station," "the voice of the radiant operator," etc., can only be to judge us all by these freaks who pollute our bands.

Now, Sir, I don't suggest that you attempt, Mussolini-like, to dictate just how our fones shall be run, nor do I for a moment infer that all fone stations are a blot on the escutcheon of Amateur Radio. Rather, there appears to me to be an alarming tendency for many newcomers to the ranks to, immediately they get on the job, litter the air up with meaningless Yankee slang; indeed, even assuming any normal man would attempt to, it is almost impossible to understand what these foolish fellows are trying to talk about. An occasional hi is alright in code working, but in fone why waste time in, parrot fashion, running off strings of the things. The beauty of fone, to my mind, lies in the fact that one can have a good personal yarn with the other chap free from the unnatural, stilted phrases inseparable from C.W. contact. Why, then, spoil this fine friendly means of sharing our ideas with our fellows by introducing ridiculous and undignified jargon?

Another thing, Sir, if I do not weary you unduly, and that is the language and jokes put over by a few stations. I recently had the humiliating experience of, during a demonstration of 3.5 fone to a young lady, having a particularly low joke come over before I had a chance to slam the set off. In fact, at this station I now hesitate before putting anything at all on the speaker. One or two such experiences are more than enough!

At various times QST has appealed to "hams" to uphold the fair name of our hobby, but up to this I am not aware that much has been said in Australia since the days of QTC. I consider it the bounden duty of every decent operator to scotch these pests;

they are found in every organisation, and although in the minority in our ranks will, unless strongly handled, hold us up to public ridicule. The Australian amateur has a record second to none, and I appeal, Mr. Editor, through your excellent paper, to the brethren to uphold our traditions.—Yours, etc.,

J. RICH. PHILLIPS, VK3CD.  
Murraydale,  
25th July, 1935.

To the Editor,

"Amateur Radio," Melbourne.

Sir,—Some months ago I wrote to you concerning signal reporting. My letter was acknowledged by printed card, for which many thanks.

However, since receiving your card, three issues of "Amateur Radio" have arrived, in none of which has my letter appeared.

I am at a loss to know why this is so, but it would appear to be due to one or two reasons. First, lack of space; second, and the most likely one is fathered from a statement made by you in your editorial in the March, 1935, issue, wherein you say the RST system is a failure. Whether the RST system is or is not a failure is not for any single individual to say.

If the amateurs as a body (or majority) think a system is right or wrong, then, of course, the position is altered, and it becomes a case of majority rule.

Another point: so far no correspondence has been published in "Amateur Radio," either for or against the RST system. Every amateur should be given the right to express his (or her) views on subjects of interest to radio amateur as a whole. Signal reporting necessarily concerns all active amateurs.

In conclusion, I will quote from your editorial of November, 1934, which states, *inter alia*, "... Individually, because each must see that he does his part towards supplying notes and articles; ..."

Again wishing you and your staff every success with "Amateur Radio."—Yours, etc.,

W. T. HOOKER, VK7JH.  
47 Bay-road, New Town,  
Hobart, 31st July, 1935.

## "Silly Interview" — No. 4

(By "Yo-Yo.")

"Who shall we see this month," asked the special reporter. "Well," spoke the office boy, "everyone's talking 5 metres. Why don't you go and see Bob Cunningham?" "Great idea!" boomed from the editorial chair. "3ML should produce something interesting." The editor's word being law, we immediately sallied forth with our pencils in our hands.

Taking the scenic railway route along High-street, we arrived, after many ups and downs, at the home of 3ML. At the moment of our coming he was in the midst of a QSO on 56 m.c., so we looked about us with interest. The first thing that claimed our attention was a 10 tube single super lying on the table.

Putting it into action, we were amazed at its quietness of operation, particularly as we knew that many electric trams were passing by at a distance of less than a hundred feet.

Switching off the super, we peered over ML's shoulder at his 56 m.c. gear. We weren't sure which was the transmitter and which was the receiver, owing to the small proportions of all the little shielded boxes on the operating desk.

At this moment ML finished his QSO. "Nice little 'mitter there," said the assistant reporter. "That's not the transmitter," laughed ML, "that's the monitor." After showing what was what in the 56 m.c. business, our host said, "I suppose you would like to see the big outfit," and then, with a startled exclamation, he rushed across the room and removed a hat and coat that was hanging on a knob of what turned out to be his newly-finished transmitter.

"Sorry," grinned one of the visitors, "I mistook it for a hat rack."

Upon closer inspection we saw that the transmitter was the same one which was described in "A.R." recently. It was complete with large shiny knobs and rows of meters. The outfit would be a credit to any station, whether amateur or commercial. The rectifiers are mounted on supports at the front of the transmitter, together with the main switch, which has the

appearance of being capable of breaking the current at a power station.

Another interesting piece of equipment was a 112 m.c. transmitter of midget proportions, lying on the mantle over the fire place, with its copper tube antenna pointing toward the ceiling.

The antenna systems in use at 3ML are many and various, ranging from a 40-metre zepp. to a 56 m.c. beam array. Standing under the collection of wires at the rear of the house, the sky pattern has quite a futuristic aspect.

"How long has it taken you to get all this gear in action?" came a query.

"I have been licensed since 1927," replied ML, "but my interest in radio goes back to 1921, in the days of crystal sets, VIM and QRM."

At this moment his voice grew very husky, and a hastily summoned doctor, who investigated the reason, pronounced the trouble as "laryngitis," brought about by a surfeit of duplex phone working on 56 m.c. His prescription turned out to be rather a palatable medicine, and we all decided that such a well-known cure should be shared, much to 3ML's disgust, who had become a changed man when he saw the brand on the bottle.

Having seen our patient to bed, we made a few more notes and then travelled back to town via the aforementioned hilly High-street.

VK3ML is owned and operated by Mr. R. Cunningham, Pilot Officer, R.A.A.F., O.C. R.A.A.F., W.T. Reserve, W.A.C., W.B.E., Traffic Manager W.I.A. (VK3).

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## A Standardised System for Reporting Signals

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The following is a report tabled before, and adopted by, the W.I.A. Federal Executive as a suitable international system for the reporting of signals:—

Under item 23 of the Annual Convention Agenda, the Federal Executive was required to furnish such a system, and Mr. P. Adams, VK2JX, Federal Vice-president, has drawn up the following, which has been accepted by F.H.Q.:—

It is interesting to note that, since this report was drawn up, the S portion of the R.S.T. system has been changed, and that portion has now been graduated from 1 to 9.

It has long been felt that the usual system of reporting signals has not been entirely satisfactory. Some time ago an effort was made to overcome this difficulty, and the R.S.T. system was put forward; and although this system was boosted by both "Q.S.T.", "Radio", our own "Amateur Radio" and other magazines all over the world, the response it met with was very disappointing.

However, this was not really surprising, as the R.S.T. system had several disadvantages, the greatest of which was the cutting down of the signal strength report from nine to five degrees of loudness. As the average ham is interested in DX and experimenting, and has become used to differentiating between signals whose loudness differs by quite small amounts, five degrees are not sufficient.

The method of reporting suggested here, whilst not being radically new in any respect, is simply an attempt at rationalising the systems at present in use.

In the first place, the three essential pieces of information to be conveyed in a report on signals are copiability, strength and quality. In the first of these the Q.S.A. system has proved itself adequate. Whilst "Q.S.A.?" officially means "How strong are my signals?" the official answers would seem to indicate that "readability" is the thing aimed at, and general amateur usage supports this.

Therefore, it is suggested that Q.S.A. be retained and used purely as an indication of the "copiability" of a signal, in accordance with the following scale:—

QSA 1.—Unreadable.

QSA 2.—Readable now and then (50 per cent. copy).

QSA 3.—Readable, but with considerable difficulty. (90 per cent. copy, with concentration.)

QSA 4.—100 per cent. readable, but still requiring some concentration.

QSA 5.—Perfectly readable without effort.

It should be noted that the above table has nothing to do with the strength of the signal. A signal may be audible several feet from the

---

R1.—Almost inaudible.

R2.—Just audible.

R3.—Very weak signals.

R4.—Weak signals.

R5.—Fairly good signals.

R6.—Good signals.

R7.—Strong signals.

R8.—Very strong signals.

R9.—Exceptionally strong signals.

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phones, but owing to severe QRM might be only QSA 2 or 3.

For reporting the strength of signals, the old R system has proved itself to be very satisfactory. The majority of hams have a definite idea of the R strength of a signal when listened to on their own receiver, and it is a question more of a mental concept than a definite loudness, but a scale is given below more as a guide than a hard and fast ruling. It should be clearly understood that it is the strength of the signal rather than its loudness that should be reported. For example, a certain W station may be heard in the same locality by two receivers, one a detector and one audio affair, and the other single signal super, finishing up with a pentode driving a dynamic speaker. With the first set the signal might be audible a few inches from the phones, and with the larger set it might be clearly

readable out in the street, and yet in each case the correct report would be, say, R6. It is really a matter of each operator getting a good idea of the loudness of the weakest and the strongest signals, as heard on his own receiver, and calling them R1 and R9 respectively, then all other signals can be mentally graded to fit in between these limits.

It is when we come to reporting on the quality of signals that the greatest confusion of thought exists. Originally, of course, the character of the signal was described in words and for clearness alone, this has much to recommend it. However, some years ago the RSGB introduced the T code, and this has been in more or less general use ever since.

However, at the present time it is given two quite different interpretations. One group use it strictly in accordance with the definitions given in the original scale, and the other

## Federal and Victorian Q.S.L. Bureau

(By R. E. Jones, Federal QSL Manager.)



A supply of the photographs of the Oakland Bridge, over San Francisco Bay, mentioned in these notes in August "Amateur Radio," has come to hand. Any station desiring one of these photographs should forward twopence to cover postage.

Log forms and printed rules for the forthcoming Combined International D.X. Contest, to be staged by the W.I.A. (Victorian Division), in conjunction with the N.Z.A.R.T., during October, may be had on application to this bureau.

Conditions did not favor contacts on 28 m.c. during the week-ends covered by the Fisk Test, and the only contacts on that frequency were those between VK4BB and VK6SA and VK6SA and VK4EI. VK6SA, in addition, worked a PK station.

Ron. Tandy (VK3KX) has received a report that his 28 m.c. signals have been heard in Europe. The report checks up O.K. with his log.

New Victorian "hams" should advise the QSL manager as soon as possible after they become active. Particulars of their call signs, QRA's and instructions as to the disposal of their wallpaper would greatly facilitate the work of the bureau.

Cards for the following Victorian stations are on hand at the bureau, 23 Landale-street, Box Hill, Victoria, and will be despatched on receipt of covering postage: —SAH, AN, BK, BL, BX, CA, CV, CW, DD, DS, DZ, ET, FB, FC, GB, GM, GU, GW, GV, HE, JV, JW, KI, KO, KV, LE, LF, LM, LP, LT, LY, NG, NM, QX, QZ, RW, TY, UJ, WC, WM, WP, WX, XK, XU, ZA, ZB, ZK, ZL, ZR, ZO, Adams, Diman, Nye.

- T1.—Hissing note similar to power leak.
- T2.—Broad AC spread over band.
- T3.—AC confined to one frequency.
- T4.—Rough RAC.
- T5.—RAC.
- T6.—Smooth RAC.
- T7.—DC with large amount of ripple.
- T8.—DC with trace of ripple.
- T9.—Purest DC.

takes T1 as the worst AC signal possible and T9 as pure crystal DC and rate all signals falling between these limits, according to their purity. Naturally, having the two standards leads to confusion, and it is suggested that the scale given below be employed.

It will be noticed that this refers only to the degree of purity of the note, and makes no mention of key clicks, etc. It is felt that special peculiarities such as these are best covered by words added to the report. Where the signal appears to be crystal controlled an X should be sent after the T grading, such as T8X.

Now that modulated CW signals are against the regulations, it will be seen that the T code covers all the types of signals likely to be met with

on the air, and they are arranged in order of relative "goodness." T1 and T2, of course, refer to the "power leak" type of signal which is heard all too often from badly adjusted transmitters, and usually caused by parasitic oscillation or an arc across condenser plates.

## 28 and 56 MC. Section

(Conducted by VK3JJ.)

The approach of summer is being accompanied by an improvement in conditions on the 28 m.c. band, and during the past month the stations in northern States have again been able to carry out successful D.X. contacts. VK3BD (2EP) has not yet been on the air since returning to Melbourne, but surprised the VK3 gang by hearing several W. and J. signals which were not audible at other local stations who were listening at the same time. This proves that our receivers are not as sensitive as the super heterodyne in use at 3BD, unless he has fluked an exceptional location, which is very unlikely.

VK3KX received a QSL from Germany, reporting his 28 m.c. signals—QSA4, R5, T9—at 0840, GMT on 12th May, which checks with his log. The time of this reception bears out the contention that the best period to work Europe will be during the early evenings, around sundown.

While at Canberra, 3BD did a large amount of experimental work with antennas, and is much convinced of the advantages to be gained by the use of beam arrays on both 14 and 28 m.c. One type easy to erect, and which gave extremely good results, consisted of two horizontal half-wave radiators placed end to end and fed in phase, with two half-wave reflectors placed horizontally a quarter wave behind them. The radiators were fed from a quarter-wave stub line tuned by a shorting bar, the feeders from the transmitter being tapped at points found by experiment on the stub line. 3BD is of the opinion that the best angle for radiation or reception at U.H. frequencies continually varies, and he has found the above beam antenna more flexible in this respect than vertical reflector systems.

### 28 M.C. IN NEW SOUTH WALES.

September has opened up much better than August, and the outstanding event to date was the first VK2/PK QSO between VK2HZ and PK3ST. Bill received a report of QSA5 R6, and gave the same; but, just to prove it was not the only place he could work, he then had a QSO with J2HJ. We won't mention Con's (2LZ) breakdown when he heard about the PK, but he was cheered up considerably, as he worked W6AWT, W6CXW, W6JJU and a W5 the week following. The time was around 8.30 to 9 a.m., and, with the addition of a contact with J2IS, the contest score of 2LZ is now over 2,500 points. His chances of leading VK are very bright now that old 2EP has retired. In a QSO with 2LZ, ON4AU mentioned he had worked 10 W's, an LU and a VE, but gave no aggregate score.

This month ends both the RSGB and ARRL 28 m.c. contests, but it is to be hoped another one will be started, as activity on this band is now greater than ever before.—VK2YC.

### FISK CONTEST QSO'S ON 28 M.C.

On 1st September there was a break in 28 m.c. conditions in Western Australia, and between 11 a.m. and noon both J2IS and J2HJ came through. The latter was

only R3 at best, and was worked with some difficulty by 6SA. Shortly after VK4BB was worked and contest cypher groups exchanged. VK6MN and VK6FO were also on 28 m.c. at the time, but were unable to raise anyone, although 4BB heard them both. The following Sunday 6FO had better luck and had a contact with PK3ST at 11 a.m., the PK coming through very well and did not fade below readability at any time. VK4EI and 6SA then connected and exchanged cypher groups without the least trouble. 4EI mentioned he had worked PK3ST earlier the same morning. Since then 4BB has had a few QSO's with J. and W. stations.

The tests on 56 m.c. between 6LR at Northam and 6SA have been unsuccessful to date, probably owing to the distance being too great or on account of the hills between. 6CA has rigged up a resonant line, 56 m.c. transmitter, using a pair of 45's in push-pull with grid modulation, and has had good results up to three miles.—VK6SA.

### VICTORIAN 56 M.C. FIELD DAY.

The first field day on 56 m.c. was held on 15th September, and the results obtained were very successful when compared to those we have been accustomed to from fixed QRA's. The following parties set out with portable gear:—3KQ and 3RS, 3BQ and 3UK, 3ML, 3WG, 3YP and 3YX, 3MR, 3OC, 3WL and 3YO, 3DH and 2nd op., 3NY, 3OF and 3KE.

Owing to a defect in their transmitter, 3NY's party decided at the last minute to join 3BQ at One Tree Hill.

The weather did not favour the venture, and the cold wind forced 3KQ and 3RS to pack themselves in the back seat of their car after mounting the gear on a board across the front seat. They were the first to get going, and their rig, which consisted of a pair of 210's in push-pull coupled to a vertical half-wave antenna, put an R9 signal through to 3YX. The latter was manning the receiver, while the remainder of 3ML's party arranged the transmitter and beam antenna. Another push-pull rig was used here with TB04 10's, but coupled to a beam antenna consisting of a half-wave radiator, with three reflectors and one director. The 12 miles between Arthur's Seat and Oliver's Hill, where 3KQ was located, was soon spanned with R9 signals, and then a watch was kept for the other portables.

In the meantime 3BQ and 3DH, at One Tree Hill and Mount Dandenong respectively, had erected their gear and were QSO, although they were not in visual range. 3BQ also worked 3HK, who was operating from his QRA. 3OF had his receiver in action and logged 3KQ at excellent strength—distance about 30 miles—who reported 3BQ's signals. Both 3KQ and 3ML were then worked from 3BQ, the signals remaining extremely strong till lunch time.

It was after lunch that the real thrill came, for 3MR's party had gone further afield and took longer to get on the air. Unfortunately, their receiver gave out, and they had to content themselves by calling only. They were located at Wallan, and were heard at each of the portable stations surprisingly strong. The distance to 3ML was 80 miles, 70 miles to 3KQ, and about 45 miles to 3BQ and 3DH. During the afternoon stormy conditions

(Continued on page 29)



## Divisional Notes

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### Federal Headquarters Notes

#### I.A.R.U. Calendar.

The half-yearly report of the I.A.R.U. has just been received, in the form of a calendar. A brief summary of the most important items is included hereunder.

#### Extension of the 7 M.C. Band.

The Cairo Conference of 1933 promises to be of the utmost importance to the "hams" the world over, and as the table of allocations of frequencies is open to revision the I.A.R.U. feels that it is not only necessary to defend our own frequencies, but, in addition, to endeavor to secure more frequencies. It is proposed to secure the additional frequencies of 7,350 k.c. to 7,500 k.c., so that the 40-metre band reads 7,000 k.c. to 7,500 k.c.

In order to do this it is urged that all who can afford the time assist in the 6,000 k.c. to 8,000 k.c. survey. This is a definite step to check up the activity of the commercials around the "ham" bands who just put on the well-known "vvvvvvv" wheel and let it run for hours on end. It is requested that volunteers check up on all commercials between these frequencies and note the type of traffic, if any, that passes through these stations.

Further details on these surveys will appear in these notes next month.

#### The Bucharest Conference.

This Conference is a preliminary to the Cairo Conference, and the I.A.R.U. feels that, in view of the importance of the Cairo Conference and the momentous matters to be decided, it is advisable that the amateurs be represented. The I.A.R.U. is prepared to finance the Cairo Conference, but feels that member societies should be willing to bear some expense in the matter of the Bucharest Conference. With this end in view, they propose that the expense be divided between the A.R.R.L. and the member societies of the I.A.R.U. on a membership basis. This means that the A.R.R.L. pays 50 per cent. of the total amount, and the remaining 41 per cent. is divided amongst the member societies. On this scale it becomes necessary for the Wireless Institute of Australia to find 100 dollars (about £25). This is the maximum amount that the I.A.R.U. can demand, and the demand might conceivably be less than this.

This whole matter is just a proposal, and has not been, definitely decided upon, but will no doubt be dealt with fully at the Annual Convention, to be held early next year in Brisbane.

#### W.A.C. Certificates.

There is a new proposal that W.A.C. certificates be issued to all who apply for them at a charge of 50 cents, and free of charge to members of member societies. This has to be voted upon and passed by

the majority of the member societies before becoming effective.

#### R.S.T. New "S" Code.

The I.A.R.U. suggest that the R.S.T. code be used with the strengths "S" ranging from S1 to S9, and the old "R" code be used for this purpose. This suggestion is made following on the objection expressed by all amateurs of all countries to the restricted "S" scale.

#### W.A.C. Certificates.

Only one application has been received of late, and that is one from VK2XJ.

#### Vigilance Officers.

The matter of Vigilance Officers has been approved by the P.M.G., and an early start is expected in this matter. All divisions have been notified and asked to appoint their Vigilance Officers.

#### Standard System for Reporting Signals.

Under Item 23 of the Annual Conference Agenda, the Federal Executive was required to furnish such a system, and Mr. P. Adams (Federal Vice-President) has drawn up such a system, and this has been endorsed by the Federal Executive.

#### Kilocycle Club of Milwaukee.

The Kilocycle Club of Milwaukee, U.S.A., desires us to make known that they transmit a programme on 31.6 mega cycles through the Milwaukee Journal Radio Station, W9XAZ, every Saturday—1,800 GMT till 1,930 GMT.

Reports are requested from members of the W.I.A., and should be addressed to the Kilocycle Club, care of the Milwaukee Radio Station, W9XAZ, Milwaukee, Wisconsin, U.S.A.

### N.S.W. Division

A motion, as a notice, was recorded at the August meeting of the New South Wales Division. It concerned an increase in subscription rates for the Division, coming into being at the beginning of the new financial year. The consensus of opinion seems to favor the increase, as it is imperative for the well-being of the Institute.

The Council is concentrating on getting matters of a contentious nature cleaned up and to get a flying start in the new year.

The initial meeting of the technical section of the Division was held on the 2nd September, at the Y.M.C.A., and VK2JX was elected President of the Section and VK2ZH Secretary of the Section.

It was decided that at each meeting two members read a paper pertaining to some phase of radio. The meetings are to be continued on the first Monday of each month at the Y.M.C.A.; all welcome.

The publicity pamphlets are available, and anyone requiring information regarding the Institute should obtain one of these from the Secretary (R. H. W. Power,

## Amateur Radio

Wembley House, Railway Square, Sydney). Printed application forms are also available.

VK2OC still continues standard frequency transmission each Sunday morning at 10 a.m. on 7,000 k.c., and at 10.30 a.m. will give frequency checks till 11 a.m.

Congratulations are extended to Z02 2HV on the arrival of his first second op.

The average VK2 amateur is anxiously awaiting the arrival of the first week-end in the VK-2L DX contest.

The VK2's are lucky, as the Monday after the first week-end is a public holiday, and they will have an opportunity to recuperate.

The rule regarding 500 points award for 28 m.c. contacts has been receiving much attention, and if 500 points can be gained for each 28 m.c. contact, as the rules seem to read, 2LZ should not have the slightest trouble in winning it, now that VK2EP has retired to Melbourne.

The Australia Air League asked that a delegate be appointed for their Educational Advisory Committee, and J. N. O'Dea (VK2FQ) was elected.

The Fisk Trophy went off with what was certainly a bang. It seems to be the most successful interstate contest since the original five pointers.

Although 10MX did not supply the surprises, the 160MX band was opened up for interstate contacts for the first time, and the results obtained were remarkable. R8 interstate reports were well awarded, and various stations contacted all States.

With the bonus awards for multiband operation, the contest was supplied with a new interest, which has not been evident in any previously-arranged contest.

The comment that it was complicated seemed unwarranted, and, anyway, the success of the Fisk Trophy showed it was appreciated.

### NORTH SHORE ZONE NOTES. (By VK2VQ.)

September has brought with it the usual run of spring DX conditions, which leave us in the happy position of being able to hear and work Europeans from 1 p.m. onwards on 14 m.c. VK2EO, who is probably one of our most successful DX men, has had no trouble in contacting 20 in an afternoon, with almost as many prefixes. It is a good augury for the forthcoming world-wide DX contest in October. 7 m.c. has also improved out of sight, and allows many European contacts to be made. In addition, the band bristles with Yanks, and also US 5, 6, 7, 8, KA, K3, J, and numerous PK's, many of whom are on 'phone. K5AG is a consistent signal on 7.140 k.c., and is only too glad to QSO U.K. Europeans are heard from 4 p.m. to 6 p.m., but at present one more or less difficult to contact owing to Yank QRM. 80 m.x. has attracted the usual run of static, and only the very bravest are heard up there. On 28 m.c. conditions remain the same—as dead as the proverbial door knob—whilst 5 m.x. has a large following of the faithful, who appear well satisfied with that particular slice of territory.

And now for the local urgers. That blighter, 2DR, has decided to forget his headache and return to the 'ham' game. My sympathy goes to you Don. (OM), and here's hoping you find another. Hi! 2AE is in the throes of rebuilding and has not been on the air. Roseville will be a hotbed of QRM when 2ZH shoves the jolts

on his DET1, but both he and Bill (2SV) use single signal receivers, so perhaps it won't be as bad as all that. Anyway, who cares? I don't live there. 2HG would take first prize at any field day, as his uncanny sense of direction allows him to steer a course for home at 4.30 a.m. and get there. Maybe it is his navigation, maybe it is bushcraft, but it is all the more wonderful, as Jack refuses to sign the pledge! Croaks of "Wowser"! Hi! The other Chatswood ether buster isn't busing these days, being too QRL; so we don't hear 2HL. 2BJ makes the most of every QSO he gets, thus holding up to his old form. It has been said that Lane Cove is the "only cemetery with lights," and 2VM and 2KJ must be resigned to the fact, as they are only on in spasms. Keith (2VM) has threatened this humble scribe with murder if I relate his foul deeds; so perhaps we had better sling off at 2KJ for a change. This worthy lad has a nice idea in rack and panel work, and his 203A final scares the birds away from the sky wire. Evidently not a member of the Gould League. Hi! Congrats. to 2HA, who was recently presented with a junior op. Seems to be quite the rage these days, eh gang? Who is next in line for a birthday call from your Uncle Jimmy? Hi! 2II's in push-pull, modulated by another pair of similar tubes; forms a new final for 2VG. 2VP makes but rare appearances on 7 m.c., and has a M.O.P.A. with 46's squirting RF into the air. Howdy VK2VE, a new "ham," who uses 15 watts on T.P.T.G. to let us know when he is on. Noel intends changing to crystal, so he should get out better then. Again howdy to VK2IP, another newbie in Crows Nest, who is making the best of matters with cannons to the right of him and cannons to the left of him. Pardon, gents! Meant 2LZ and 2WW. Here at 2VQ, in spite of increasing old age and decay, we manage to fool around. With a hey nonny hey and a hot-cha-cha! Catch on? Con. (2LZ) busy chasing elusive Europeans on 14 m.c., as is also 2HY. Roy has been more active of late, so maybe she has tossed him in. The Fisk trophy contest claimed 2WW's attention, but it was given up in favor of 5 m.x., where droves of second ops. helped Bill to throw his voice around. Hearken, 2HZ! What has happened to the Old Bill? The boys are beginning to think that he is too proud to chin wag any longer. 2SS is taking his place as the "Big Bad Wolf" with horrible effect. Support me, someone! Bob always claims that a Joey has been using his call when he is reported as being T5! Jim Corbin has a new sky wire in position, being 2HZ's 50ft. stick in disguise. If you want a laugh, ask him to give you the low-down on remote control. He has his oscillator in one room and link couples it to the rest of the boloney in the basement. Hi! 2DT has forsaken 7 m.c. in favor of 5 m.x., and seems to get out fairly well. Jim (2AG) knows more about "wine, women and song" than "ham" radio, but we gave him up as a bad job long ago; so enough said. Tut! Tut! Coming to Cremorne, we find the answer to a maiden's prayer, dividing his favors between LY's cricket and radio. Yep, gents! I mean 2VN. The BCL's have hunted 2FM out of Mosman, and he has taken refuge near 2VN. Alec has given up QRO in favor of 1 wall on a 199! Can you beat it? Take more soda water with

your bovril, Alec, and lose those tom-fool notions of yours. HI! 2JE still going strong, and has come to the conclusion that 2VQ's YL is the "gal" with the silver-plated voice! Oh, well, that's something for me to pawn! Eh, Billy? HI! Welcome, 2FV! A new "ham" in Mosman; by name Jack Fairweather. Has been using a two-stage crystal for good effect. Were you responsible for the recent drought, OM? Another addition to the criminals in Mosman is 2PY, who, rumor hath it, is one Nancarrow, from VK5. Did they deport you, OM? 2XC will be missed from the air, as he is bound for Newcastle. Ian, no doubt, will try ways and means to get on from there. Who is the tall blonde who has taken pride of place in 2HI's young life? Perhaps we shall never know, as Fred for some unknown reason likes to keep these little affairs to himself. Now that we have both Fairweather and Hailstones in Mosman, 2PV should stand every chance of becoming a weather prophet. This with apologies to 2FV and 2HI. HI! Pete throws point six at the Yanks now and then with fair to gloomy results. You do better when you shut your eyes, Pete.

The usual sitters are active in Manly, 2HF, as of old, throwing his weight around. Yes, I said weight—400 pounds of it—or perhaps it's measured in watts, eh? HI! 2FF, the lad from Deewhy, making a noise on fone—fair enough, OM. 2IX wearing the seat of his pants out riding what I'm told is a mobike. What exactly is it, OM, and also what sex? That's enough for Manly. Anyhow, they are far too busy looking for mermaids to bother reading this tripe. And now we say cheerio to 2XJ, who has decided to give the same a rest—only for a short while, we hope. Frank, in spite of a rough deal from Mother Nature, in the matter of a horrible face, managed to make many friends. These include 2DL, 2XZ, and all the fone ginks. HI! The lies I tell! And, by the way, 3DQ, you don't stand an earthly chance in the next DX test, with all VI's primed up. May I issue a lot of fatherly advice to all and sundry? It is a well-known fact that T9 sigs, for some unknown (?) reason, change to T5 when a contest commences. From BERS288, Terry Adams, of India, comes news of how the B.E.R.U. contest was spoiled there by this practice, and also by grinding out records in DX hours. So it would appear to be a universally selfish habit, which might well be dropped in the coming test. Remember, gang, the world judges you by the quality of the signal you put out. There is no more to be said, except that I will be glad to explain the Amateur Code to any who disagree with my remarks.—73.

## ZONE 8.

Albury gang fairly active, and 2IG and 2YI getting their share of W's, J's, etc.

2YI was unable to work with W, but since raising the west end of his antenna has been more successful.

Cougrats, to 2TX, of Wyong, who called here on honeymoon tour. Going to VK3: thence back via South Coast.

3FG mostly on 14 m.c., using Parabolic beam, and reports effective.

Conditions point to improvement on 7 and 14 m.c. for VK contest. Yanks very enthusiastic, and many constructing beam antennas on VK. So we can expect some R9 sigs. from there.

73's (VK2OJ).

## NEWCASTLE NOTES.

(By 2RG.)

A debate was recently held between two sides consisting of 2MS, KG, CS and UF, against 2RG, ZW, FN and R. Best, as to whether new "hams" should be confined to 80 m.x. for their first year. The former side won.

2FN gave a lecture on "The New Metal Tubes," and another recent talk was by KG on "Suppressor-Grid Modulation."

Club interest lately has centred in the weekly DX contest, and, after five weeks, 2YS leads with 77 points from ZC, 73, and 2RG, 68.

Conditions on 40 m.x. have been fairly good lately, though ZC is troubled with incessant power GRM. Up to date, 20 countries have been worked in the contest, the best being K5, VU and SU by 2YS, F8 and G by 2MTU, PA and D by 2ZC, and HJ by 2UF. By working the HJ (South America), 2UF made sure of his long coveted WAC. 20 m.x. is not so bad for DX. Eh, Frank!

2RG has been undergoing some changes. After changing his shack and his bread-board rig for a rack, he has been notified that his call-sign is to be changed to 2RF in November. While bemoaning his bad luck, Ron, is hoping that the letters of the new call will inspire his rig to greater output. HI!

2TS has been luckier, having been given back his old call, held for eight years, of 2KB. It was taken last year for BCL purposes.

R. Best and F. Finlayson are sitting for the next A.O.P.C., so it is hoped that there will soon be two new "hams" in the club.

## LAKEMBA RADIO CLUB.

(By VK2LR.)

The general meetings of the above club are held every second Tuesday at the club rooms, 334 Canterbury-road, Hurlstone Park. The Morse Class, which meets every Tuesday and Thursday nights, is progressing very favorably, and indications are that several club members will be sitting for the next examination. Miss L. Litchfield, formerly second op, at 2XZ, was successful at the last examination, and shortly will be on the air under her own call sign, 2YG. The fact that a young lady can obtain her licence after four months' study certainly puts to shame those mean individuals who not only have been "pirating" the air, but have been making use of two of our members' call signs. 2XZ and 2OD have been receiving reports on their 40 m.x. transmissions despite the fact that neither has been on the air for some time. Then we have the other type of thief who recently broke into the shacks of 2XZ and the Waverley Radio Club (2BV) and stole radio apparatus of considerable value.

At the recent W.I.A. Field Day, held at Wyong, Lakemba Club was represented by 2IC, 2OD, 2OW, 2DL and J. Langley. The direction finding apparatus installed on 2OD's car proved very effective until the car was within 100 yards of the hidden mobile station, 2NU, when the loop became ineffective. However, Jack Langley discovered the transmitter 13 minutes after the Newcastle Radio Club, thus winning second prize for the Lakemba party. The arrangements were excellent, and the W.I.A. and Wyong organisers are to be congratulated.

At a recent meeting of the club five new members were accepted, including Mr. Pinnell, 2ZR. The QSL officer (2QP) reports that the club's Outward QSL Bureau is proving very satisfactory, many thousands of cards having been handled. The 5 m.x. group have been very active during the past months, the following call signs being heard on this band:—2OD, 2CY, 2EV, 2QX, 2EH, 2XD and 2XM. 2KS and 2IO have forsaken 5 m.x. and are experimenting with modulators on 240 m.x.

This month we will have a little club "gossip." 2XM reported very QLYL, but we trust this will not hinder his radio activities to any great extent. 2XW reported likewise. Has not attended meetings for many moons, but often induces his YL to call CQ on 'phone. Western suburb members complain of QRM from a local "ham," who, it is alleged, is almost conducting a 24-hour recorded musical session on 40 m.x. for seven days per week.

2QP, 2CY, 2XM and party visited 2PX one night for the purpose of taking a flashlight photo. of the shack. 2PX got in first with the flashlight, when he accidentally plugged a 110-volt lamp into the 240 socket. There was a terrific bang, and 2CY received a bath of powdered glass. 2IC, the "DX Merchant," was recently informed by PAOAZ that all the Dutch gang will be looking out for the boys in the forthcoming test.

All enquiries, addressed to the Hon. Secretary at the above address, will receive immediate attention.

## Victorian Division

### KEY SECTION NOTES.

(By C. Woodward, VK3YO).

The September meeting was noteworthy, in that our popular ex-President, Mr. Harry Kinnear (VK3KN), was welcomed back to Melbourne after his overseas trip. Although KN had little time for radio whilst away, his account of conditions in the various countries and his visit to West Hartford and the A.R.R.L. headquarters was very interesting.

Arrangements were made at the meeting for a 56 m.c. field day, which has since taken place, and turned out a huge success. A full description of the day is published elsewhere in this issue.

In accordance with the usual custom, Mr. De Cure (VK3WL) gave a talk on "Radio Interference," which was very well received.

A move is afoot to organise the social side of the section, and Mr. Cook (VK3OX) has been placed in charge of arrangements.

Most of the active members of the Section have spent the last two or three weeks putting portable 56 m.c. gear together for the field day, leaving many vacant spots on the 7 and 14 m.c. bands. The tremendous interest which has been aroused on five metres is evident by the fact that there were no less than 10 in the party that went to the top of the Great Dividing Range to try and QSO the numerous parties around the coast. Those who were unable to attend the field day have taken the opportunity to overhaul their gear for the International DX contest, which is now only a few days off.

Owing to all these preparations there is not much to report on the doings of the individual members of the Section. However, it was learnt on good authority that 3EI worked their first W. Congrats!

3KE is still enjoying himself with local rag chews on 80-metre 'phone, whilst 3JO assures us that he is swinging something. We are not sure whether he said cats or chokes.

3YP has added yet another RF stage to his receiver.

Everyone else is talking 56 m.c., and they won't stop until the DX Contest starts.

### 'PHONE SECTION NOTES

(By VK3DH.)

The usual good attendance was recorded at the August meeting of the 'phone gang. Other Sections of the Victorian Division of the W.I.A. are heard sometimes to pass sarcastic remarks about the good muster we obtain at our meetings, coupled with something about "allocations of frequencies." Whether they really mean that the former is a direct result of the latter we don't know, but the fact remains that our gang do show up at the monthly meetings.

At this meeting the chair was taken, as usual, by 3TH (Mr. G. F. Thompson), whose opening remarks were to the effect that, if members applying for frequencies next month were not financial, no allocations would be forthcoming.

A certain amount of discussion took place about the new method of allocating frequencies, but all was satisfactorily settled. The Allocations Committee shone in their improved style; in fact, I believe the chairman had the "order of merit" out before the meeting started. Mr. Kerley does a lot of homework now. It certainly saves a tremendous amount of time at the meetings, and you are to be congratulated, Jim.

Referring to the transmissions and private doings of the 'phone gang, there is actually nothing to say. On the air they speak for themselves, and the "high-fidelity" transmissions need no comment.

As for the members themselves, they don't report anything revolutionary or outstanding. They never seem to go QYL or such like; if they do, they never say anything about it.

In connection with the competition staged by the New Zealand DX Club on the night of Sunday, 18th August, and Monday, 19th August, this took place between the July and August meetings, and the official report will be delivered by our chairman (3TH), who was the judge, at the September meeting.

It is reported that 3HF and 3BH are active on the 56 m.c. band. I know that 3KE has a receiver and 3FW a transmitter. I have heard the latter at East Brighton on 56 m.c. So with a few more on the UHF band we could probably stage some quite comprehensive 'phone relays.

3KQ has been relayed by 3DH and was reported QSA 5R9 at Geelong, but on 200 m.x., not on 56 m.c. It is hoped that in the not too far distant future we will be on the air via 56 m.c. from an auto. touring around the suburbs of Melbourne.

Speaking of ultra high frequencies, the very successful field day held on Sunday, 15th September, included representations from the 'phone gang, in the form of 3HK, 3YK, 3KE, Geoff. Searle and 3DH,

## Amateur Radio

and did we have an FB time? Ask 3YK about the "bottles of lunch," which caused him to ride his motor cycle (not megacycle) from 3HK's QRA up to Mount Dandenong in just a few minutes, after a QSO between 56 m.c. gear at 3HK and portable 3DH at Mount Dandenong.

Early in September 3BY (Mr. O. Holst) was rather suddenly rushed off to the hospital with appendicitis. He is now progressing satisfactorily after the operation, and I confidently take the liberty of expressing the sympathy of the members and their hope that he will very soon be back on the job. Meanwhile the transmissions from 3BY are ably carried on by 3TH.

That is all for the present, and may the gang have some new, novel and interesting news for next month.

73'S DE.

### WESTERN DISTRICT NOTES.

(30W—3HG.)

With the improvement in conditions on 20 m.x., more of the gang are now using that band. There still appears to be a fair amount of activity on 80 m.x., however, in spite of the increasing QRN there.

European stations are now coming through very well in the late afternoons on 20 m.x., also several South Americans, whilst W. stations are getting scarce.

The Fisk contest proved that the 160 m.x. band, used probably for the first time by those "hams" who worked there, is quite effective for contacts with all VK States, and it is a wonder this band is not used more during the winter, especially by country stations who do not, as a rule, have BCL's to contend with.

3NQ complains of some pirate using his call. Jim has been trying to work W7CC on sked on 7MC, but finds the QRM too bad for his 7 watts.

3PG's total of countries now 41, the latest being HJ and OZ on 2 watts. A new aerial has been erected at this station, and Norm. now has a total of 1,100 feet of wire in the air (Any "ham" aviators please note!)

3HG recently put fone over to J2ME. Got R6. He is at present on QRP, pending repairs to his engine.

3JA is active on 7MC and working considerable DX, including LU.

3KX put R6 'phone to HC1FG. Guess he is about WAC on 'phone now.

3QW more active with work on the ranch than with radio, but hopes to land some of the DX next month.

Best of luck for the big contest, chaps, and don't let the ZL's get all the DX.

### NORTH-WESTERN NOTES.

(By VK3CE.)

Nearly everyone in this Section has been rebuilding their gear and having a general tune-up while awaiting the improvement of conditions, which are slowly, but surely, taking place.

VK3TL has rebuilt his RF squirt. Now he is able to use a buffer on all bands, and by means of switches changes bands in a few seconds. He has also built a frequency meter, working on the same principles, instead of the usual plug-in coils.

3OR has changed to a Pentode C.O., and has raised his output as a result.

3KR has gone back to d.c., after having a lot of trouble with his converter, and

his 80 m.x. fone has once again reached his usual f.b. quality. Has also worked W. ON, J, G and K7 during the month, but perhaps the most interesting are his experiments with a portable rig, which is built into a small suit case, consisting of a 201A in a Hartley circuit and an OV1 rx., with the antenna fitted around the hood of his "Model A." Has a power of between 1 and 2 watts from 100 volts of "B" battery. He puts a Q5 R7 sig. to 3QR over about five miles, and Q5 R5 fone, using loop mod. He also found he could modulate the rig simply by shouting at the suit case, due to the tank tuning conditions becoming a condenser mike. Hi!

3NN is on a visit to VIM. He no doubt will bring back some new gear, but guess his main object will be a look over the Royal Show exhibits.

3WN is another "ham" who has rebuilt his rig. Although the circuit is still the same, he has improved his note a great deal. 3CE has almost persuaded Jack to pin his QRH to a "shivering rock."

No news of 3HL this month, but we understand he has built a rig for 160 m.x., and has been working in the recent contest. Good luck, Allan, and may you keep the old watts waiting!

3CE is waiting on a 40 m.x. pebble. He hopes to land some DX with its help. However, we hope to be able to give some further dope on its performance and results next month.

The boys are very pleased with rains, just received, as they have arrived just in time to save the crops and push along some feed for the hungry sheep.

Well, QRU for this time.—So 73's.

### South Australian Division

(By VK5LP.)

VK5AI is the call of Ted Riley, of South Terrace, who has started up on 14 m.c., and his first QSO was with HB9, f.b. OM.

What did KA1EE say to 5MD? No QSE here and local KA's on your frequency. Get some crystals, Doc!

The S.A. police force will soon have plenty ops. if they go radio. VK5DK, of Torrens-road, Croydon, has just started up, using 80 EC, OSC, 46 PA, and doing f.b. Ralph is a budding cop. Hi!

5LB and LN have left the higher frequencies for the broadcast on Sunday mornings. Leave the VL's early Saturday night to be on in time Sunday a.m.

If you leave the "ham" ranks and go commercial, you must come back to "ham" radio, which 5MB has done. Merv. is on from Crystal Brook with a hefty signal.

Several of the country "hams" are now coming through f.b. Recently had 5WJ, 5DQ, 5WG, 5XR and 5HR.

5UK only on now with skeds with VKZ; too busy at the aerodrome. Don't leave us, Tom! Come back and tell the VKZ's off about their harbour and bridge. Hi!

The code classes of Thursday evenings are in charge of Harold Marsh and Lisle Trebilcock, of the P.M.G.'s Department.

Don. Linklater, who has gained his A.O.P.C., hopes to be on the air shortly and do some research into dynamic instability of tubes. Hi!

VK5BH has just come on the breeze. QRA is 6 George-street, Payneham, and is busy building up crystal rig, so he

won't have T6 note. New "hams" take notice.

If you are called by VKZ at Alice Springs, you can lay the odds that there will be QTR in the QSO. The sand must affect the clocks up the bush.

The 80 m.x. band has been very quiet. Only the usual old stagers on, and QRN has been very bad on the band.

5LG thinks that radio is better than work. Does plenty of walking around, visiting other "hams" shacks.

5AL, who is kid-belter near Willunga, hopes to be on after the school holidays.

Those posted missing of late:—5NR, 5KB, 5SU, 5MY, 5RH, 5JU.

Well, gang, cheerio,—73's.

## VK5 NOTES. (By VK5LG.)

200 m.x.—The usual crowd of B.C.L. entertainers will soon be augmented by VK5LN.

80 m.x.—Was popular during the Fisk test, but except for a few die-hards is quiet now.

5MO and 5ZC are the main VKS; fine exponents heard here.

40 m.x.—Like a beehive, minus the musical buzz. Some DX, lots of QRM and bum notes.

20 m.x.—Patchy and at times very disappointing. However, DX is there if you are lucky.

10 m.x.—Ask 5GR, not me.

5 and 2½ m.x.—Hi! I don't listen there; my receiver won't work. Hi!

Now for some scandal:—

5SU.—Has what looks like a half-wave matched imp. antenna, about 50 feet high.

5LD.—Packs a hefty T9 rig right on my best DX. Hi! on 14 m.c.

5WK.—Was QSO HCIFG on 20 on loop fone. Shades of Heiseng!

5RX.—Recently worked his 60th country on 20.

5KL.—QRS two Japs. on 10 m.x. Clarrie will soon be as enthusiastic as 5GR.

5LY.—Worked PA and OK on 40 recently; f.b., Bill.

5RT.—Trying out fone on 20. Mody. a bit mushy, Bob.

5GF.—Also packs a hefty rig down here.

5MK.—Won the recent VK5 traffic handling test. Good work, Jack, OM. Skeds and sound judgment again.

5BH.—A newcomer to VK5 radio, Payneham. Seems that place is getting as crowded as my QRA. Hi!

5FW.—Waiting for results of his second-class. Are you still trying to put 425 volts on that 171A PA, Eric?

5LP.—I heard that the doctor says he can get up a bit now. Best of luck to you, Laurie, OM.

5LG.—Busy making meters of all descriptions out of junk. They work. Hi!

5MB.—Was heard on the air after a spell of umteen moons.

Hope 5LP has some more dope. I've been QRL. All for now.—73.

## West Australian Division

### NOTES BY VK6LJ (PER 3ML.)

At the last monthly meeting a debate was held, "Phone versus CW," and resulted in a win for the CW men AAA. 6GM, 6MW and 6SA were for fone, while 6MN, 6KO and 6LJ were CW, with 6FG adjudicator AAA. Mirth was the main

member made by statements said and later contradicted, but all voted quite an excellent evening spent in smiles AAA. The conditions ensuing over here are only fair, 1.75 m.c. being exploited by 6MN, 6FO and 6SA during Fisk contest; 3.5 m.c. used by fone birds, and is also just about gone to the dogs; 7MC lets us hear our ole ZT-ZS coppers; R4 to R7 as early as 2,300 local time; 14MC quite fair, and 28MC another revamped in Fisk AAA. All portable gear will be dusted again for September 28 and October 5, when the Motorcycle TT and Aero. Pageant require radio assistance AAA.

Now for some bull.—6AE heard with a PDC note, good kick, but plenty chirps; 6BB sometimes comes on the air—better chalk it up, hi! 6BN cheating the cops and getting a car licence; 6BO and 6AA got the boys baffled; 6CB gone back in shell except at meetings, when he spouts enough—matter of have to, hi! 6CX built 2A5 Tritet and 2A5 modulator, but hasn't been heard with it; 6CP QSO-ed a CM6 other night—f.b., Clarrie; 6DH had his aerial waited away in the gentle breeze; 6FL on the air with crystal at last and says he strikes trouble; 6GM still on 3.5 m.c. fone; 6FH going up north with A.I.M. scheme—best of luck, Fred!; 6HW at the Port uses shuvgrab with 25 watts—the 1 is missing, hi!; 6JK seen up at last meeting—recently shifted to new QRA and will be on again shortly; 6JG makes a row on 7 m.c.; 6JE waiting still for his FBXA from the land of the kilowatts; 6KZ not needed for Abyssinia yet! Hi!; 6LB, of Northam, not on much—what's the matter with you all? 6FT and 6LK, also at Northam, but both QRL and no "ham" work; 6LJ still mucking around! Tiger, of 6LY, never seen, heard, worked or talked about—has an attack of YL-itis; 6MN recuperating after Fisk contest; FB Syd.; 6MW rises 59EC, 59 Buff, 46's—heave ho!—wide suppressor, mod. on the buffer; 6NJ a fone bird on 7 m.c.—ought to be scrounged, hi!; 6VA hasn't QSO Northam yet on 28 m.c. or 56 m.c., but may work 6RL on 56 m.c., who is a few miles away using TC04/10's push-pull; 6WI will be on again at the aerodrome for the pageant; 6WM hasn't broke the ether since field day, and last, but not least, is a new "ham," 6ZZ, at Katanning AAA. Congrats, O.M. Stephens; hope QSO you soon.

## Tasmanian Division

The September monthly meeting of this Division was well patronised and quite a lively meeting conducted.

We had the pleasure of entertaining two visitors, in the persons of 3ZR, who is holidaying in his native town, and 7RY, who was on a visit from the north. We are always glad to see any of the gang who happen this way.

General business for the evening being of small order, more time than usual was left for discussions. The President and Secretary jointly outlined the results of their trips to the north recently, and gave an account of the business conducted and their experiences during that week-end. Visits were paid to the shacks and also TNT was inspected, and generally a busy time was had.

(Continued on page 29)



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## R.A.A.F. Wireless Reserve Notes

### Federal Notes by the C.O.

The recent issue of the reservists' "Bulletin" has met with great success and general approval from all Districts. From all accounts it fulfils one of its objects, and that is as a magazine of solid material for the members to work on. This paper is issued free to all members of the Reserve quarterly. It is compiled by Reservists for its members, and contains details of District training, procedure articles, interesting accounts of Air Force work, and a mass of general matters in common with a member's interests.

Membership of the Reserve has always necessitated a person holding a transmitting licence for eligibility, and requires his resignation should that licence expire or be allowed to lapse. This should be borne in mind by all, as when such a thing happens it means stopping of all issues of the "Bulletin."

Several cases have been cited lately where members have had the misfortune to lose their Reserve badges. Should this occur, it is necessary that full particulars of the loss be made out in the form of a report to the Officer Commanding, in order that a replacement may be effected.

Within a very short time now all members will have their crystals and holders issued. This will require a slight change in Section working, because every member of a Section will be working on the same frequency within a few cycles. Traffic and general training should be speeded up considerably, owing to the absence of "dial twisting."

The Fisk contest showed that there are a great number of real operators in the amateur game that are not members of the Reserve. For those who delight in traffic handling there is no better past-time than the Reserve. Full particulars may be obtained from the Air Board, Melbourne, if desired.

### SECOND DISTRICT NOTES.

(By 2A1.)

Members of the Second District of the R.A.A.F. Wireless Reserve will remember the promised series of visits to the 'drome at Richmond, mentioned in the last issue of "Amateur Radio." Well, last Sunday, 1st September (N.B.—Fathers' Day), Messrs. Henry Bischoff, Thompson and self caught the 9.28 ac emma from Central en route for Richmond, and found Eric Ferguson (2A6) waiting at Parramatta with a case in his hand which yours truly took to be some liquid refreshment (Fluid ambrosial), but which only contained those obsolete articles known to the unsophisticated as "peejamas." The shock of this revelation left is (i.e., 2A2 and myself) rather cold, and we were darned glad when, watching the train pull out at Clarendon, to find that Eric had left behind his bally case, pyjamas and all.

At the signal office we were met by Corporal Purdy, who immediately set to work to expose our abysmal ignorance of station working generally. Sergeant Endean, and he then showed us the

mobile station for reconnaissance work, and gave us some good dope on its working and general usefulness.

It was about this time that the firebell rang, and Eric beat the gun to the mess-room, where our spirits were raised R5 to R9 in double quick time.

We then paid a visit to the transmitting station, at the far end of the aerodrome, and inspected the high-power station installed there. The whole outfit was particularly neat, with plenty of emergency gear and some excellent antennae of various types. They tell me that there are a couple of bottles of the best at the top of the transmitter masts, but I didn't go up, for fear I might be disappointed on arrival at the top and commit suicide by jumping off.

Another very interesting hour and we went back to the hangars to look over the gear carried by the Wapitis and Demons. Typical of all Defence W/T and R/T equipment, this is remarkably thought out—compact, easily adjusted, and built on the unit system, with quickly replaceable spares. With these sets you can instantly plug in anything from a wave trap to a Wapiti.

Then followed an interesting talk on air to ground working by Sergeant Endean, in which he pointed out the effects of clouds, swinging aerials, framework of machine, inclination of ground stations, aerial, etc., on the signals to and from the plane, and convinced us that the best of us would be at sea (!) in the observer's cockpit of a Wapiti for the first time, however we would like the chance for him to be able to prove it.

A practical demonstration of air to ground working was then fixed up, and we watched a Wapiti being fitted with wind-driven generator and W/T R/T equipment, preparatory to taking off. We threaded back to the signal office and sat tight, listening for the plane's C.W., which came through very well. Fone from the plane was only fair, however, due to the usual troubles associated with open cockpit, craft engine noises, etc., but we feel sure that you would have applauded the observer for his efforts. He yelled "Hades!" and we became afraid he would do it in his larynx. Anyway, we wouldn't waste our time listening to Jimmy Allen after that.

In the workshops we saw wings under construction, engines being overhauled, and all the usual gear associated with those who go up to the air in ships.

The general impression gained was one of scrupulous efficiency, cleanliness and good-fellowship, and, above all, a remarkable tolerance for the kind of saps like us who go up there pretending to be wireless men.

Thank you, cheerio, and the best of luck, and don't bother fetching out the band when we come up next time, please.

### THIRD DISTRICT (3Z1—VK3UK).

Practically all Reserve interest has been centred around the Fisk contest this month, and the Reserve members seem to have provided the bulk of the partici-



## Amateur Radio

pants. Every active Third District member was on for some part of the contest at least, but it was unfortunate that the contest period came at a time which made it difficult for many to take a fully active part. One of the disappointments was the lack of VK2 stations with which to work. This was especially noticeable on 20 m.x., and any ideas that the absence of VK2 signals was due to skip effects was dispelled by the way any N.S.W. signal pounded in, when it was heard. On the second Sunday afternoon, VK2NY seemed to be the only VK2 on the band for any length of time, and he was coming in at a full R8 for most of the time. The only conclusion one can draw is that the N.S.W. men were conspicuous by their absence.

3A5, although he stayed off the air for most of the contest period in order to give 3D2 a clear run, was able to pile up a respectable total, none the less.

3A6 was heard consistently each of the week-ends. Dud. has his sigs. so well educated to skip over to W. that he found it hard to make them come back to earth a mere 1,000 miles away! He is becoming a very enthusiastic 5 m.x. man, and should be in a great position where he is.

Following the success of the recent 5 m.x. field day, VMC will have to take up the thread of the experiment now, as the distances over which we can establish solid communication are beyond the scope of a field day with all stations emanating from one centre. One of the great features of this work is the simple gear required. 3Z1/3Z2 used 2 45's in PP. fed from a 180-volt generator and modulated by a 42. The aerial was just a single wire somewhere in the region of 60 feet long, slung over the side of the iron tower on One Tree Hill, where the station was located. This month we are hoping to organise a Victorian test, so that we can lift our record up near the 200-mile mark.

3B1 has gone up with his PA gear for a tour of the Wimmera. He will be away about eight weeks, and has taken a portable 80 m.x. outfit with him, so that he can keep his Reserve schedules while he is away. This portable consists of a 46 as a CO. feeding a quarter-wave current-fed aerial. The receiver is a 19, using the first Triode section as a detector and the second section as a resistance coupled audio. Leo. will be on the air most evenings, and will welcome schedules with interstate stations.

3B2 had the satisfaction of building a 5 m.x. outfit on the morning of the field day and contacting both 3DH and 3Z1/3Z2 at their respective portable locations.

3B3 put up a great performance in the Fisk contest, and should be well up with the leaders.

3C1 is having a very busy time at work, and has the unpleasant prospect of facing a number of examinations in the future. We hope he will be able to carry on his Reserve schedules; they should provide a very welcome relaxation from the strain of studying.

3C3 is, unfortunately, feeling the strain of the overwork of the last few months. He has been particularly busy, but we sincerely hope he will be able to let up on most of his work for the next few weeks, in order that he can recuperate, to some extent at least.

3C5 was second op. to 3B2 during the Five-metre Field Day.

3C6 is as active as ever, and no doubt piled up a big score in the Fisk contest.

3D4 will be down in Melbourne for the Show this week, and 3D5 will be temporarily taking over SIL position.

Owing to the preparations for the Fisk contest, the test itself and the reacting afterwards (hi!), traffic totals are very small this month, so we are not totalling them.

### SIXTH DISTRICT NOTES.

(By 6Z1-6MN.)

This District is looking forward to the visit of Demons and Bulldogs next month, and to the handling of traffic during the period of the pageant. However, it is disappointing to note that no W/T exercises will be conducted with the machines. Nevertheless, we are looking forward to paying a visit to Maylands to inspect the Demons.

A new member this month—VK6SG, of Harvey—who is building a three-stage rig, working from a rotary converter from 220 DC mains. 6B1, at Kalgoorlie, is still awaiting arrival of his FBX receiver from U.S.A., as the lower frequency working is impossible because of the power noise racket. 6Z2 is still on the rebuild and unable to keep watches. 6A2 has installed a pair of 46's in the final stage, excited by a Tri-tet oscillator, but in doing so never missed a watch. Jack won a pair of 46's in a local contest. 6A3, another boy with the rebuilding bug, but keeps a Hartley oscillator tuned up for watches. In the recent Fisk contest, 6Z1, 6Z2, 6A2 and 6A3 entered, but 6B1 was heard so little that it is not known whether he participated or not.

NOTES OF RESERVE ACTIVITIES  
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appeared between 3BQ and 3KQ, and lowered signal strength greatly, which could not be improved on a beam antenna tried by the former.

The fixed stations—3KW (Geelong), 3BW (Portarlington) and 3JJ (Melbourne)—did not hear a signal all day, probably through being out of the visual range. Their signals were not heard either. 3UH had slightly better luck and heard 3DH. 3HK could work 3BQ, but could not hear the others.

There is to be another field day on a larger scale during October, and, with the co-operation of all W.I.A. groups, it is determined to gain for Victoria the 56 m.c. VK distance record.

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Amongst the affairs discussed at a meeting of the clan on Sunday morning, at Colonel Wright's, was the prospect of another State Field Day in the near future. No definite arrangements were made, but it was unanimously decided that one should be held, and there is no doubt that it will receive good support.

When these two notabilities had exhausted themselves—and everybody else, hi!—7BJ was brought from hiding to complete the evening with a lecture. He chose for his subject the Ultra H.F., and held the floor most ably with an outline of the simpler receivers and transmitters most used in operating the 56 m.c. band. This lecture was one of the best heard in the club for a long time, and was received with the round of applause that it certainly deserved. Joe certainly has radio at his finger tips. It was very noticeable the amount of interest that was aroused, members asking questions and quietly discussing the pros and cons of U.H.F. at the conclusion.

A few lectures of this class would do much towards pulling VK7 into action, and it is to be regretted that we have so few able or willing to do their bit in this direction. A recent incident, here recalled, makes one sit and wonder. A member was approached to give a lecture. He accepted, and it was announced in all good faith. On the meeting night there was no appearance of this lecturer, and, on enquiry later, an answer was received to the effect that he was only joking in his accepting. Now, I ask you, is that 'ham' spirit?"

Before going further, I might mention that 7BJ went through the July A.O.P.C. paper at the previous meeting (August), and gave a brief outline of each theory question.

Much has been said and done about 7WT's transmitter, but we are again in the midst of a rebuild. We have stripped the 46's to build a M.O.P.A., one of the younger members having built and donated a rack for it. If the speed with which the start was made can be maintained, it might be perking any day now.

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late the oscillator? We did, and there could be nothing simpler. It is recognised that modulating an oscillator is not the best of practices, but no untoward happenings were noted here. The circuit (Fig. 2) should explain itself. The only alteration necessary is the insertion of the secondary of the modulation transformer in series with an R.F. choke, in suppressor lead, by-passing with a small capacity, and biasing with about 40 volts. No other adjustments need be made. Like the daring young man on the flying trapeze, this modulates with the greatest of ease! A 256 is capable of supplying enough power for 100 per cent. modulation. However, a word of advice. If the audio peak voltage should cause the suppressor to go more than 50 volts positive, nothing will be gained in R.F. output and may cause trouble in the grid circuit. Modulation in this way seems equally as effective when the plate circuit is tuned to harmonics.

Any standard method of coupling may be used for driving a PA; from tests made, preference was given to link coupling.

## HAMADS

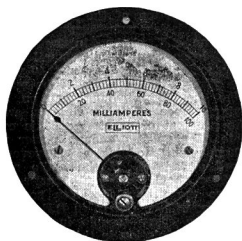
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pressor is earthed except when the plate circuit is tuned to the fourth harmonic of the xtal, when the output is greater at a slightly positive potential. This should be about 40 volts and can be derived from a battery or to a clip on the bleeder resistance of the power supply. The tuned circuits should not prove difficult.

The cathode circuit L1C1 can be fairly high C about .00025 mfd.; with a coil of 20 gauge enamelled wire, wound on an inch diameter, former will need about 20 turns close wound. This circuit (L1C1) has to tune to the frequency of xtal—in practice it is nearly always detuned considerably on the high frequency side of resonance. The plate condenser C2 can be .00015 mfd., and the coil can be proportioned so that 40 ms. will be with the plates almost fully meshed, and 20 ms. at the minimum capacity end, so improving the plate efficiency on the higher frequency band. No noticeable difference was evident in the grid circuit. A separate plate coil will be necessary for the 80-metre band.

In tuning up the circuit at first try it on a harmonic — preferably the second (40 ms., when using an 80 ms. xtal). Let the filament heat up sufficiently and set C1 at minimum capacity. Apply the plate and screen voltages. With a neon lamp or any R.F. indicating device touching the grid or top plate of the xtal holder, gradually increase the capacity of C1 until the lamp glows, indicating oscillation in the grid-cathode circuit. A mill. meter in the plate supply lead possibly reads about 40 mills., remaining the same while the capacity of C1 is increased and oscillation gets stronger (unless C2 happens to be tuned to a harmonic, when plate current will decrease.) Having the grid-cathode circuit oscillating fairly strongly, the plate condenser C2 can be tuned, watching the plate meter for a sharp dip in current, indicating resonance in the same way as an ordinary amplifier. The decrease in plate current will vary according to the amplitude of oscillation in the grid circuit, and to the harmonic that the plate circuit is tuned. That is to say, the dip in plate current will be more pronounced when L2C2 is tuned to the third harmonic of the xtal than on the fourth harmonic. If there is no decrease in plate current, or no

R.F. in the plate circuit at any setting of C2, increase the capacity of C1 and re-tune C2, touching the grid with a neon lamp occasionally to see that there is not excessive R.F. on the xtal. When C1 is increased to such an extent that L1C1 resonates at the xtal frequency, oscillation will stop and the circuit will have to be detuned on the high frequency side always. When there is R.F. in the plate circuit re-tune C1 for maximum output. This will reduce plate current, but do not tune C1 for minimum plate current, as the R.F. output generally falls off before that setting is reached, also causing excessive R.F. feedback and heating of the xtal. Listening to the signal in a monitor—after the frequency has been found—will help in telling if the xtal is heating by noticing any frequency creep, especially if only a small xtal holder is used.

In checking the frequency of the R.F. output, don't forget that the third harmonic of an 80 m. xtal is about 27 metres and of no use. By using a 60-metre xtal the third harmonic will be on 20 ms., but cannot be used for 40 m.

Tuning procedure for fourth harmonic output will be the same as for the lower frequency. R.F. output can be considerably improved by having about 40 volts positive potential on the suppressor grid. It will be quite easy to obtain this from the bleeder in the power supply as the voltage is not critical, and any variation that is likely to occur through bad regulation will not have any effect.

When tuning the output circuit to the fundamental of the xtal the cathode circuit will be de-tuned almost to the second harmonic to obtain optimum output. However, the output is such that we can afford to sacrifice efficiency for the sake of stability, and to ease the strain on the xtal.

A test was made for frequency creep over a period of about three-quarters of an hour with the plate circuit of the osc. tuned to the fourth harmonic of the xtal and full load put on the osc. Other than a slight drift during the first few seconds, when the rig was started up, the carrier remained steady in a S.S. receiver during the whole period.

This tube is meant for suppressor grid modulation. Well, why not modu-

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